

Patent Application of James J. D'Amato, P.E. for "Bi-directionally Driven Forward Converter for Neutral Point Clamping in a Modified Sine Wave Inverter" continued

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would be to adjust the primary to secondary turns ratio so that the reflected load from the secondary onto the primary would be lowered in value. A lower turns ratio at a given transformer flux density level will yield a high voltage at the secondary. When clamped to the input of the inverter, the transformer secondary would deliver a higher current at the peak transient level and pending the turns ratio would also require a proportional higher primary current at the peak transient level. A higher primary current would preclude to an increase in active snubbing during the neutral dead time and suppress load-producing transients in a more expedient manner.

Not discussed herein were specificities such as transformer core types, required inductance factor of the core material, winding construction of the transformer, minimum requirement of primary inductance, etc. and so on. This was due to undefined areas such as required output power level, output frequency, snubber generator oscillation frequency, drive transistor gains and the like. In addition and most important not discussed due to required level of detail were design specifics that support the bi-directional forward converter transformer. These include clamp windings for the resetting of a gapless core and lower power snubbing elements that eliminate transformer transients, which ultimately protect the drive transistors and diodes. All of the aforementioned become specific design considerations when addressing the overall requirement for the inverter with the bi-directional forward converter for neutral point clamping at its output.